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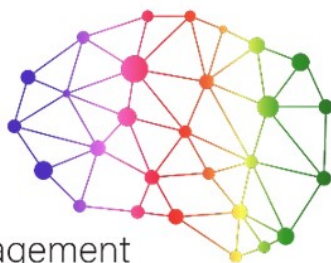
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ANIMA

Aviation Noise Impact Management
through Novel Approaches



D2.2 Noise Impact Mitigation Priorities Report



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¹ Use one of the following codes: R=Document, report (excluding the periodic and final reports)

DEM=Demonstrator, pilot, prototype, plan designs

DEC=Websites, patents filing, press & media actions, videos, etc.

OTHER=Software, technical diagram, etc.

²Use one of the following codes: PU=Public, fully open, e.g. web

CO=Confidential, restricted under conditions set out in Model Grant Agreement

CI=Classified, information as referred to in Commission Decision 2001/844/EC.

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1 Executive Summary

An Impacts and Balanced Approach Expert Committee (IBAEC) convened on May 18th at London Heathrow Airport to participate in a workshop facilitated by ANIMA researchers from Manchester Metropolitan University. The workshop aim was to introduce the ANIMA research project, review the key findings of Deliverable 2.1, and to gain participant insight as to the veracity of the findings, as well as providing the opportunity to make additional comments and contributions.

8 IBAEC members representing a range of aviation stakeholders attended the workshop, with other IBAEC members given the opportunity to contribute to the Committee via email having received a summary report of the D2.1 findings and the discussions that took place during the workshop.

This paper presents the discussions that took place during the workshop, and additional comments made by IBAEC members. Core messages from the workshop include:

- The ICAO Balanced approach is a good basis for action to reduce noise exposure, but guidance is required on the appropriate use and efficacy of different elements.
- Given that it is never possible to reduce noise exposure to zero, it is necessary to engage with effected communities, and to consider the issue in the context of the costs and benefits that accrue to them from living near to the airport, and of aviation in general.
- It is important that such engagement is a two-way process of dissemination from the airport to communities, and listening by the airport about community concerns, insight and priorities.
- All airports, of any size, need to consider aircraft noise and anticipate the consequences of growth. The 50,000-movement figure for the application of the END is too simplistic and needs to be reconsidered, for instance by having a pre-qualification criterion that requires airports to begin the process of building noise management capacity and engagement with stakeholders, particularly on the issue land-use planning.
- Management of noise impacts needs to be informed by quality data. Existing reliance upon noise modelling outputs or complaints analysis to inform Balanced Approach implementation can lead to sub-optimal outcomes. Appropriate engagement and dialogue between airports and their surrounding communities is an important pre-requisite to assessing the nature and extent of noise problems and appropriate responses. Further policy and good practice guidance would help to facilitate this.
- It is clear that the industry is committed to reducing noise impact (through quieter technologies and operating practices, and through operational restrictions), but doing so requires collaboration across the board, between aviation stakeholders, and between different airports to exchange best practice. Communication from the onset to understand what is valued by communities, and what the expected outcomes of an intervention are, seems to valuable.
- Land-use planning is a critical element of the balanced approach and can facilitate airport growth by preventing inappropriate encroachment of noise sensitive buildings. Effective land-use planning does however require the support of national or local government planning authorities.

2 Introduction to ANIMA and the Impacts and Balanced Approach Expert Committee

2.1 What is ANIMA?

ANIMA (Aviation Noise Impact Management through novel Approaches) is a comprehensive research project, which addresses a critical issue for Europe: Aviation noise. It is granted and supported by the Horizon 2020 Research and Innovation Programme of the European Union. The overall objective of this €7.5 million project is to develop new methodologies, approaches and tools to manage and mitigate the impact of aviation noise, enhancing the capability of the aviation system to respond to the growing traffic demands.

2.2 What is the Impacts and Balanced Approach Expert Committee?

IBAEC exists to gain input from airport end-users and important stakeholders on airport noise, to validate the findings of the ANIMA project, to help guide the recommendations as to how best to reduce noise exposure and associated impacts in the aviation sector, and thereby inform the ANIMA research agenda. IBAEC therefore represents an opportunity to help shape the future of noise policy and mitigation practice across Europe and beyond. IBAEC will meet regularly throughout ANIMA through workshops that will take place in different locations across Europe.

2.3 What was the purpose of the first workshop?

The first phase of ANIMA was to understand the effectiveness of existing aviation noise policy and interventions, and to identify key concerns, challenges, and desired outcomes from the perspective of different stakeholder groups. This was conducted through a detailed analysis of approaches to the ICAO Balanced Approach³ in each European Member State, which was followed up by a series of Elite Stakeholder Interviews to gain further insight into current noise management approaches.

On the 18th May 2018, ANIMA researchers from Manchester Metropolitan University hosted a workshop at Heathrow Airport to present a summary of the review and its key findings. A total of 32 people were invited to participate in IBAEC, with 16 people agreeing to participate in the workshop. When presented with dates the most popular date had 11 members available to attend, of which 8 were able to make it on the day. Logistical issues and the busy schedules of invited partners proved to be a significant barrier in obtaining a higher number of attendees, however, as illustrated in Annex A, we believe that the members who were able to attend represent a good cross section key industry stakeholders.

³ <https://www.icao.int/environmental-protection/Pages/noise.aspx>

2.4 Format and rationale of this report

This summary document distils the key messages obtained from Deliverable 2.1 of ANIMA, a Pan-European overview of Existing Knowledge and Implementation of Noise Reduction Strategies, and presents the commentary provided by IBAEC members either during the first workshop, or contributed later via a report that was circulated to all members. This report also represented an opportunity for those who did attend the workshop to validate the summary of discussions that took place and to make any additional comments.

This document presents the key findings of Deliverable 2.1 in turn, followed by a series of questions that were posed to members to stimulate and structure discussions and comments. These questions were not intended to be exhaustive or to constrain, but rather to stimulate discussion and help to ratify the outcomes of D2.1. Comments provided by members at the workshop on the 18th May are then presented. Lastly, the report presents a conclusion of the first IBAEC workshop in the context of Deliverable 2.1 and Work Package 2.

3 How we approached the review

To build a picture of current practice relating to aviation noise policy and mitigation strategies, two approaches were taken. First, a data capture template was created for each Member State. This template comprised two sections:

- National approaches to aviation noise, specifically:
 - Current noise policy at the Member State level to enshrine the 2002/49/EC (Environmental Noise Directive) and Regulation EU No 598/2014 of the Parliament and of the Council 16 April 2016 (the ICAO Balanced Approach) into national legislation.
 - Other noise policy instruments.
 - Guidance documents that help support aviation stakeholders in complying with noise legislation or in the implementation of noise mitigation strategies.
 - National research programmes designed to help add to the existing knowledge base regarding aviation noise.
- Best practice implementation at airports:
 - Reduction of noise at source.
 - Noise mitigation through operational procedures.
 - Approaches to land-use planning.
 - Operating restrictions.
 - Noise Impact Mitigation, i.e. via non-acoustic factors.
 - Complaints management.

The template was then disseminated to ANIMA research partners for completion based on their expertise and geographical coverage, in some cases it was then further distributed to local Member State experts. From these templates we were able to capture data on 25 Member States and Associated countries (i.e. Ukraine and Switzerland), which we believe has given a comprehensive picture of current approaches to noise management and mitigation across the European Union.

These templates were supplemented by a series of Elite Stakeholder Interviews with 17 experts who we defined as those people who have the ability to influence, or who are impacted by aviation noise. These stakeholders comprised *airports, local authorities, community groups, freight organisations and national and international aviation bodies*. The aim of the interviews was to provide insight into the different perspectives on noise impact mitigation and the effectiveness of current interventions as applied by industry stakeholders. Additionally, they helped to validate the information contained in the data collection templates (D2.1). Themes covered in the interviews included questions relating to:

- Aviation noise policy and the efficacy thereof in guiding European States towards aviation noise mitigation.
- The reduction of noise impacts (via the four elements of the ICAO Balanced Approach).
- Wider approaches to noise impact mitigation for instance through engagement activities, quality of life interventions and other non-acoustic measures.

4 Key Findings of the Pan-European Review of Existing Regulations and Mitigation Strategies

4.1 No single approach solution

The data showed a substantial variety of contexts in which airports find themselves, and the specific challenges they face. This suggests that they need their own specific approaches to noise management. This was supported by interviews where a number of participants stressed that there is no single solution to the noise challenge, and that any best practice recommendations must be mindful of each airport's specific situation. The implication is that ANIMA needs to take a *toolkit* approach to its recommendations driven by overarching implementation principles so that users are able to design approaches and select the best practice as appropriate to their circumstances.

4.1.1 Workshop Discussion Prompts

- What might such toolkits look like?
- Do you have any thoughts on how smaller airports and those at earlier stages of noise management development can learn from the lessons of those at the cutting edge?
- What might the priorities be for such toolkits?
- How can support help build local capacity for Balanced Approach implementation?

4.1.2 IBAEC Member Input

It was suggested that each airport requires its own diagnosis to determine the specific noise challenges and solutions, and that this should go beyond a review of complaints, which do not necessarily reflect the views of the entire community. Participants suggested that some residents may have stopped bothering to complain, some may be serial complainers and some may not find noise to be a particular disturbance to them or know about the complaints process. A lack of appropriate metrics for such an evaluation was also cited as an obstacle to full comprehension of the prevailing context with respect to noise.

- Community Body; "You have complaints from residents but these complaints do not reflect at all, many people have stopped complaining, they are still annoyed but feel that nothing is being done so they have stopped complaining. A diagnosis needs to be done; speaking to the community and using appropriate metrics. In the EU we have Lden as used for action plans etc., but this is not enough. The event based index for certain amounts of noise is useful, but not LEQ".
- Industry Body; "Complaints are an indicator but nothing more, there are too many complaints from too few people. The problem at the heart of all is this: I can get a view of this from the operators, I can get a view from the airports, how can I get a view of the community, i.e. the beyond just those who complain?"

A local authority disagreed that each airport has its own specific challenges, stating that “I disagree, the noise challenges are the same: the limits [impacts] of quality of life of the citizens.” The same participant stated that local authorities are the gateway to understanding the concerns of the wider community (i.e. those who do not complain). “My answer: the local governments. They represent the whole community.”

Developing and recommending **solutions** for particular airports was identified as challenging due to the range of airports that exist and the levels of expertise and resources available to some airports.

- Regulator; “Metrics are important of course but when you talk about tailored to local circumstances maybe you don’t need detailed metrics. Smaller airports will be overwhelmed and probably things won’t be done. When you talk about tailored approaches, they need to be simple enough so that they can be implemented. [...] Airport Managers have lots of measures but they don’t know what to implement. We don’t just need a list of measures, we need to know how long it will take, how much to implement, expected outcomes and so on.”
- Airport; “The one thing to get out of ANIMA is the message that each airport has to be managed in a specific way; there is not global solution. Even when an airport operator owns multiple airports, each will require its own fine-tuned procedure. [...] We want the toolkit to contain options so you can see to which airports this particular intervention applies.”
- Airport; “I think that tool kits should be as a list with implementation guidelines of all possible noise reduction actions which can be shown to any airport who will use only those which could be implemented by its characteristics and availability of its stakeholders. Beside that I suggest that in ANIMA project should provide a table with reduction procedures, their benefits, average time for implementation (from airports experience), average cost. With that managers will know how to organize time and amount for its implementation.”

Land-use planning was identified a focus of particular attention for any toolkit as this element of Balanced Approach requires a specific approach to a local situation. It was also noted that effective land-use planning depends on early action, even before noise issues exist, however in many cases this is seen as a waste of resources since there is no immediate problem to be addressed. In line with that, it was suggested that any toolkit should include a range of methodologies so if there is no noise problem, simple systems can be applied.

- Aviation Authority; “LUP is focused on the local situation; it cannot be handled in the centralised way. There should be a range of methodologies. If no noise problem, have simple systems with limited granularity. If problems then you would want higher detailed systems.”

Providing toolkits that are able to help airports that are growing rapidly was highlighted as an essential requirement; so that they are able to plan for growth

and the challenges that may lie ahead; effective land-use planning provides the opportunity to reduce noise problems before they arise.

- Industry Body; "Prevention is better than the cure." [The problem is] we have low cost carriers who are finding regional airports and targeting them to help them grow. So we have new airports that are experiencing noise challenges for the first time. We need a tool/system for planning to help airports understand noise issues from such fast expanding as soon as it happens so they can plan before the noise arrives."
- Airport; "I think that most smaller airports during their development (below 50,000 ops) don't think about installing noise monitoring terminals, developing action plans, and for sure in their masterplan they don't calculate noise contours and community concerns. I think that especially we can learn from large airports such as Vienna (3rd runway), Frankfurt, London Heathrow, how hard is to develop new runways, how much time they need due to courts procedures, so maybe that time and lesson learned are very valuable for smaller airports to start with actions before they reach their maximum capacity."

It was suggested that the ICAO Balanced Approach guidance could be a good framework on which the developments of such templates could be based.

- Industry Body; "There is an ICAO guideline with lots of good options. Let's say, right this is the best toolkit we have at the moment, how can we expand on that?"

Collaboration was identified as being a key requirement for effective noise management, perhaps facilitated through a collaborative decision-making programme.

- ATM Organisation; "Missing from the Balanced Approach is the joint approach with different aviation stakeholders, but also with the community groups. 10 years ago, LHR convened a meeting between BA (British Airways), LHR (Heathrow Airport operator), UK-NATS, HACAN [community organisation]. They asked; find some common ground that you agree on, and also, what can you all work on. So we sat with HACAN and said what can we do, what can we trial. We developed a community led option, a community led design; and it was successful even though some people suffered from this [in terms of being newly exposed to noise]."
- Airport; "CEM- collaborative environmental management: airline, ANSP & airport team(s) are essential to discuss noise reduction via new operational procedures, when selecting the new procedure: eg. direct take-off."



The consideration of non-civil aviation noise was also raised as an issue to be addressed, particularly at smaller airports where, for example, civil and military aircraft use the same airport.

- Airport; "It is very important to take into consideration that still several airports have a military component. As military is not under noise related law, focus must be on communication to community as airport or ANSP's can't control their flight path and for noise isolation programme at houses".

A local authority IBAEC member stated that it is important not just for smaller airports to learn from those at the cutting edge, but that the same should also be asked of those communities living near to airports who represent a potential source of valuable information that can help guide airports in appropriate noise mitigation initiatives.

- Local Authority; "In the list of Workshop Discussion Prompts the second point refers of how smaller airports can learn from the lessons of those at the cutting edge. I think we should ask the same question of the communities living near the airports."

4.2 European policy responses to aviation noise are comprehensive, but there are gaps in Member State implementation.

Both 2002/49/EC (END) and EC Regulation 598/2014 (Balanced Approach) have been extensively transposed into national legislation across European Member States. For qualifying airports (over 50,000 annual ATMs), the requirements of END appear to have been successfully implemented. Interviews regarding the Balanced Approach suggested that it represents a useful guiding framework for noise management, however the implementation of designed Action Plans was questioned, predominantly by community groups. The data capture templates suggest that the reality is somewhere in the middle, with some airports going to great lengths to reduce noise, whilst others are only just beginning their journey to effective noise management, with only minimal interventions reported. There are several reasons for the variation in approaches, ranging from airport size, the local economic importance of aviation and the demand for growth, regional development in the land surrounding airports, and lack of expertise regarding noise management solutions. Several participants also reported ambiguity in the terminology used in legislation at all levels, meaning that the core messages in the Directives are sometimes lost.

4.2.1 Workshop Discussion Prompts

- How can ANIMA enhance support for building capacity for Balanced Approach implementation?
- What are your views on the clarity of wording of legislation surrounding noise management?
- Why do you think some airports are behind others in terms of implementing noise management initiatives, and how might such barriers be overcome?
- Do you have any thoughts on the 50,000 movements criteria of the END (would a lower threshold help anticipate and prevent future noise problems for high growth airports?)

4.2.2 IBAEC Member Input

The ATM threshold for compliance with the Environmental Noise Directive was questioned as being somewhat arbitrary in nature and that this figure either needs to be reviewed, or that there needs to be some sort of flexibility in terms of what airports need to do at different points in their development; for example by developing appropriate land-use zoning to control encroachment, or by engaging with communities to ensure that the interventions made by the airport will have the outcomes desired by communities.

- ATM Organisation; "It is artificial to say if you have 49,999 [movements] you're fine, and at 50,001 you need to act. It is a good idea in theory to have the indicator, but ANIMA needs to suggest that there are degrees of freedom or at least some levels of things that need to be done around this figure".

The desire to address the 50,000 movement figure via a novel, flexible approach was supported by other members who stated that the 50,000 threshold itself is

not the problem, but rather that there is a need for Member States and airports to better anticipate the need for action before the threshold is reached.

- Industry Association; "changing a threshold in an EU directive won't change much. There is a greater need for outreach and knowledge exchange, than just changing the metric"

One of the workshop participants indirectly supported this message by stating that some Member States and airports lacked the ability to produce quality noise maps and action plans, suggesting that they require more support in doing so.

- Community Body; "reducing the threshold isn't the final solution because many Member States are bad at producing maps and action plans or implementing them."

It was suggested that the figure of 50,000 movements was maintained, but that a 'pre-qualification' figure was added to the END which would require small but growing airports to begin a dialogue with their communities and other stakeholders, so that when they do qualify for inclusion under END they are better prepared to develop comprehensive Noise Action Plans, for instance by being aware of the challenges that lie ahead and the preferred outcomes of different stakeholder groups.

- Airport; "Decreasing this threshold will burden smaller airports financially. I would like to suggest to put 40.000 movements as limit for starting preparing actions plans and to work on preparing noise management programme. With this measure they will be ready when they cross 50,000 movements/year."
- NGO Community; "We would think there could be merit in adding a growth-based criteria in addition to the 50,000ATM threshold, something like 20% increase in movements over the previous 3 years [that would require airports growing quickly to have to comply with END, even if they are small]."

The disparity between best practice airports and others were identified as resource availability and airport size.

- Airport; "There are lots of airport just waiting 50,000 movements and don't have money for investment in entire noise monitoring system. Bigger airports also have advantage due to negotiation with airlines and implementation of noise reduction actions especially when implementing penalties due to higher noise and night flight bans".

The local authority IBAEC member stated that they did not believe that any airports have a valid excuse (in terms of expertise) in not completing noise maps and action plans, believing that such information is easily obtainable, but that such airports lack the will or motivation to pursue such information.

- Local Authority; "In my opinion, at 2018 in the EU no one can say "that some Member States and airports lacked the ability to produce quality

noise maps and actions plans". All the knowledge is there, all the know-how is there. Maybe the staff of an specific airport are missing it but you can contract it easily. If there are not good maps and actions it is because there is a missing will to have them."

4.3 Land-Use Planning and Encroachment

Member State data templates highlighted a mixed pattern of land-use planning policy and implementation. This was confirmed in interviews, where encroachment of inappropriate development around airports was highlighted as a consequence. At the heart of this problem appears to be competing planning priorities between local authorities and airports. Local authorities benefit from development in their regions, whereas airports are keen to limit the development of incompatible land-uses near their sites. Encroachment appears to result from a lack of effective forum in which these potentially competing agendas can be discussed and consensus built. Interviews suggested that more explicit policy (supported by a clear rationale for such action) specifically to protect airports from encroachment (and thereby enhance the potential for airports to support regional development) would help to solve this issue; such policy being set at the Member State level to account for regional circumstances and the principles of subsidiarity.

4.3.1 Workshop Discussion Prompts

- Is there a role for consistent policy messages to support airport-local authority engagement designed to reconcile potentially competing agendas?
- What are your views on land-use planning policy?
- Are you aware of examples where airports and local authorities are collaborating effectively on this issue?
- Do you have any thoughts on how best practice regarding land-use planning can be improved?

4.3.2 IBAEC Member Input

A local authority IBAEC member stated that they disagreed with the notion of encroachment as it places the airports as the victim.

- Local Authority; "I think to use the word "encroachment" is not appropriate, it shows a clear airport oriented position. The whole point "land-use planning and encroachment" is written in a way that looks like the airports are the "suffering" part. Airports are infrastructures that must be included in the land-use planning but are not the heart of them."

It was acknowledged that aviation noise challenges are rooted in land-use planning, and that this is often hampered by competing interests of the airports and local authorities. A proposed solution was that there should be an authority that is given responsibility to improve land-use management with the ability to take action as necessary in terms of non-compliance.

- Community Body; "The problems are rooted in planning of the land."
- Regulator; "There are competing interests. There should be an oversight authority. Responsibilities should be set from the beginning. If you don't do stuff and problems arrive you are to blame. There should be mechanisms for LAs to be held responsible for bad management."

The guidance on land-use planning provided by ICAO was praised as a good starting point for effective dialogue between different stakeholders, however the enforcement of such guidance, in light of the competing interests, was questioned.

- Industry Body; "It's nice guidance and you can get people talking to each other through it, but do you get a result from this when there are competing interests? You can urge people to talk to each other, but how do you make them do it, and ensure something happens after it."

One member suggested that the Resource Management Act of New Zealand is a good example that could be followed. This Act is designed to protect airports from encroachment, based on the national importance of transport infrastructure, and the recognised benefits of overcoming barriers to growth. In 'protecting' the airport from encroachment, local communities are in turn protected for airport noise exposure which would occur if developments close to the airport were approved. This is not to imply that airports need protecting above communities – but viewing the challenge in this way could help to reduce the number of people who are significantly noise exposed.

- Airport; "The Resource Management Act to protect air, water soil etc. [...] recognises that aviation is an important resource for the country that needs protection. Airports are sensitive to encroachment, so the airports are protected from noise legally."

Forecasting was identified as being an important part of land-use planning, as a means to demonstrate that whilst development in an area may seem appropriate in the short-term, it could lead to significant challenges in the future. Moreover, this information needs to be effectively communicated to the public so that they have assurance that the properties they invest in will not become significantly noise exposed.

- Airport; "We have a master planning for 30 years this includes long term high movement rates modelling far from what they currently have."
- Airport; "Long-term plans for entire region (local) must be done, not only airport masterplan but also regional development plan."
- Community Body; "it is important to give the information to people who are going to move to an area; they need to be told that they are moving to a noise zone but the information is not currently there."
- Airport; "Focus on forecasting. Identifying the right stakeholders responsible for forecasting, as well as valid, well informed, accurate input data is essential to come with the right information on conflicting partners: local authorities & airports. Thus, both parties have time to get informed, prepare feedback for negotiating the eventual encroachment(s). Local Authorities will be best informed about the long-term (over 20 yrs) regional development. Additionally, communities need to be informed in time to be able to make proper decisions if they want to buy a house in a

future noise sensitive area. The research question should be: to what extent can land-use planning modelling help the local authority, Airport and community dialogue?"

A problem with forecasting was raised in terms of specificity of noise zoning, which suggests that one area will have limited noise the next street may be noise exposed. More granular noise zoning could be the solution.

- Regulator; "The problem with zoning is that it suggests that you are ok here but not here. There should be flexibility to say in the zones outside of noisiest zones; you can build/live here but you need to be aware of the issues of this."

In the United Kingdom, Planning Policy Guidance 24 (PPG24)⁴ was highlighted as a good scheme that was taken away by the Government and that could be the template on which new zoning laws could be based.

- ATM Organisation; "PPG24 established noise exposure categories, so if you were in a particular contour it would really try to preclude developments there or say 'if you build here you need insulation'. This was good but the government threw it away and never replaced it. Something similar would be good."

Another recommended approach to land-use planning was Long Term Planning Design, as taken at Charleroi (Belgium), where studies on the impact of future proposals for airport developments made by the airport are carried out by external consultant and communicated accordingly to local community stakeholders, including local authorities. This provides a legal base on which development in the region takes place; with building permits being renewed based on environmental quality.

A key factor that must be considered in land-use planning is ensuring that policy is enforced.

- Aviation Authority; "There is this kind of [noise zone] planning in France. There is legislation that says no developments in a zone, but it does happen. [...] There is an organisation responsible for monitoring and controlling land use, but it has no teeth"

Finally, it was recognised that there needs to be consideration that humans often make imperfect decisions, even when provided with the best information. When provided with noise zoning data, people may decide that they are still willing to live in the area; only for their perspectives to change over time; and as the airport grows.

- Industry Association; "the one thing regarding informing people about and giving them the choice is that people make bad decisions. People think 'I

⁴<http://webarchive.nationalarchives.gov.uk/20120920010607/http://www.communities.gov.uk/documents/planningandbuilding/pdf/156558.pdf>

can handle the noise' but after 5 years they may see noise completely differently; especially as traffic grows."

One mechanism to help alleviate such problems was highlighted at Charleroi airport where the airport operator purchases houses in noise affected areas and rents them to the public, with a clause that enables people to pull out of the contract if they find noise to be unacceptable for them. This is however not a solution to the long-term issue of noise exposure, but it does help to address any mis-match in-terms of the assumptions of noise exposure compared to the reality.

4.4 Efficacy of engagement programmes

Airports participate in a range of engagement activities with local communities and this approach is on the rise, particularly at larger airports or airports that are constrained by noise. Engagement programmes can range from simply making noise data and management information available on airport websites, to deeply embedded Dialogue Forums that actively work with the airport and can have influence on airport decision-making. Despite this trend, and the fact that interviews suggest that there is great value in these activities, there is little empirical evidence of their efficacy, or where, when and which forms of communication work best.

4.4.1 Workshop Discussion Prompts

- What examples of good community engagement schemes are you aware of?
- How effective are these kinds of schemes?
- What is the evidence for 'effectiveness'?
- What information do communities want and how do they prefer to receive such information?
- What should effective communication and engagement seek to achieve (more acceptable forms of airport development, fewer complaints, lower expressed annoyance)?
- What information do airports need to effectively communicate with their communities?

4.4.2 IBAEC Member Input

One member suggested that it could be prudent to refer to the CAEP Working Group 2 Circular on Air Traffic Management⁵, which states that engagement should happen early. It was however raised by the same member that there is a lack of an evidence base on the effectiveness of engagement.

- ATM Organisation; "We don't really know if the approaches we are taking early are working. Are they being successful? It has been for me. Now I know what the issues are. I know what areas we can go after to make changes in [...] understanding local needs can help with operational planning."

It was acknowledged that there needs to be dialogue to inform how best to deploy the technological innovations and their capacity to actually reduce annoyance. L_{eq} was raised as being an inappropriate metric with which to demonstrate the impact of specific noise management interventions such as new operational procedures.

Another member suggested that such early engagement could be facilitated through a modified, more stringent, approach to 2002/49/EC (Environmental Noise Directive), which would see airports that reach, say 30,000 annual movements, required to open a dialogue with communities so that the future

⁵ <https://www.icao.int/environmental-protection/Pages/Community-engagement-for-aviation-environmental-management.aspx>

development of the airport can be planned, with their concerns and areas of priority understood prior to growth.

It was also highlighted that engagement should be a two way process, not just through noise mapping and action planning, but also through the dissemination to communities how complex it is to manage noise effectively and why airports do the things that they do. This was seen as an opportunity to foster empathy from communities as to the challenges faced by airports.

- ATM Organisation; "There are things you can do when you are sat round a table. Education can happen in both directions"
- Local Authority; "This is key. Engagement should be a must, it will not solve all problems but will avoid a lot of them. As much as airports and communities must live together, it is important that airports show real engagement with the communities that get the worse part of their activity, accepting that for a minority there will be never a solution. An engagement must be clear, long term, developed by professionals.

In response to this it was however acknowledged that this sort of engagement can be a significant challenge when referring to large communities of many thousands of people.

It was also stressed that engagement should not focus purely on those who complain about noise, but to ensure that the debate on communication is broadened to the whole community, with the benefits of aviation (and of living near an airport), made clear; for instance through civil community platforms.

- ATM Organisation; "Civil community platforms get a debate going. People who want to complain want to get their voice heard, but there are lots of voices that are not heard because they haven't got a problem [with noise]".

It was suggested that communities need to be better informed regarding the benefits of living near the airport. However a local authority member disagreed with this statement.

- ATM Organisation; "We need to take a cost-benefit approach. We have the noise but we have the jobs, the economic benefits access to a global society. When we do this, we can make it easier to grapple some of the issues. [We need to] try to talk about this issue like a balance sheet – 'you have problems with a social cost, but you have all these positives too'. We need to broaden the net of the debate and disseminate some of the benefits."
- Local Authority; The suggestion "that communities need to be better engaged regarding the benefits of living near the airport" is useless because those citizens only get the bad side. So even if they know and agree that airports are a benefit for a region, they don't get those benefits, so to insist on that is not a way to take."



The importance of disseminating action plans effectively was raised by an airport as being a helpful way to engage with communities, especially when combined with forecasting.

- Airport; "I think that showing them that action plans exist, what will be done and when, how that will influence on them, and also what the industry is doing to reducing noise will help them to understand that airport is working [to reduce noise]. Action plans with forecasting of results [future noise] can help communities to see what to expect in future years".

It was also noted during the workshop that there is limited policy guidance or recommended good practice on consultation and dialogue with communities and that this is an area for future development – although guidance is emerging here, i.e. through CANSO⁶.

Finally, one of the members present stressed the requirement to remember that noise impact is not just about annoyance and that those who are not annoyed may still suffer from health impacts associated with noise, for example through sleep disturbance. The imminent publication of the WHO reviews of aviation noise and health impacts should shed light on this issue.

- Community Body; "It is important to remember that without hearing noise you can still be affected."
- NGO Community; "We would support reference to WHO as a reference level that's trusted by communities. It's also important to note that a critical element of dialogue is feedback to communities on how their comments have been treated, and if no action is proposed, why."

⁶ <https://www.canso.org/publications?page=1>

4.5 Impact of Balanced Approach Interventions

Interviewees consistently questioned the overall benefit of some Balanced Approach interventions. There was a feeling that despite a range of interventions across the full spectrum of the Balanced Approach elements from reduction to mitigation, that the outcomes in terms of community benefit were not always evident. Several interviewees responded that they feel that airports are often making noise management decisions based on political reasons rather than on the voices of community members who actively engage with them on noise issues. For example, when an airport makes operating procedure changes the results in terms of benefit to the community are often not realised as communities may not notice improvements to noise, whilst some communities might be exposed to more noise at the benefit of others (for example due to changes in flight paths). The concern is that there is often no evidence that interventions being made are making a difference to the quality of life of communities, and that airports could be having greater impact by focusing on other approaches, or by engaging with communities about the expectations and evaluation of interventions. For instance, community groups and airport stakeholders stated that further research was required to determine the impact and benefits of sound insulation schemes. This raised a broader question about the systematic assessment of the outcomes of Balanced Approach implementation.

4.5.1 Workshop Discussion Prompts

- Has Balanced Approach implementation been valued by benefiting communities?
- How might this be assessed?
- How might such evaluation inform future policy and practice?
- Does addressing non-acoustic factors have a role in mitigating aviation noise impact?
- Can you think of activities where airports might be able to make an impact in the quality of life of local communities, beyond the Balanced Approach elements?

4.5.2 IBAEC Member Input

Expectation management and the importance of communicating the expected outcome from interventions to stakeholders (i.e. communities) was highlighted as being an important factor when implementing Balanced Approach measures. This is particularly the case for operating procedures which often may leave more people noise exposed, whilst others may not notice that noise has been reduced. Conversely, some people may not agree with the way in which a given change in noise exposure has been implemented, for example if they expected a different outcome to what they are perceiving post-intervention.

- Industry Body; It depends on what you anticipate the benefit of an intervention is actually going to be. For instance, "I'm doing this to make sure it doesn't get worse" Well they [communities] then say "There's no change". But the reality is that it has worked."

- Airport; "Communities that detest the A380. The data shows it is not as noisy as a 747, but it is bigger and it flies lower so people perceive them as noisier. They are not interested in hearing the facts."
- Regulator; "These non-acoustic factors have a big role to play and we need to look into this more. The Balanced Approach was about reduction of exposure but now it there's a need to address non-acoustic factors".
- ATM Organisation; "We need to take more of a psychological based approach to this to understand what exactly is driving this annoyance, because sitting somewhere in there are different solutions"

It was raised that a solution here could be better communication with communities about the expectations of results from changes made to, for example, operating procedures, and to develop appropriate means of evaluating the impact of such changes that may consider less tangible elements such as what the noise will 'feel like' after an intervention, as opposed to noise reductions disseminated through noise metrics. If operating procedures do not produce a benefit that is perceived as being positive by a community (even if it has objectively reduced noise in terms of decibels) then has that intervention been valuable and worthwhile?

It was highlighted that today communities want fair treatment and that Balanced Approach measures are not always perceived to deliver on this.

- Community Body; "At a certain time we expected that people would go into a coal mine and risk their health. Today that is not accepted. It's the same with noise. People are less tolerant to risk. We want equality of treatment, equality of health and equality of exposure to risk. This is one of the reasons behind increase complaints."

In particular it was noted that too much emphasis has been placed on sound insulation.

- Community Body; Insulation is not a solution. It is a tool to help people sleep, but it's not good for quality of life; you can't open a window, you can't use your garden, you can't have a barbeque".

It was suggested by one member of the Committee that better zoning can help to make insulation more effective but that it needs to be supported by policy that requires sound insulation at lower levels of noise exposure than currently exists; i.e. through larger zones.

A local authority IBAEC member was surprised that the Balanced Approach was questioned by participants, whilst an NGO representing noise communities stated that they believed community groups were somewhat apprehensive about its effectiveness, in doing so highlighting the importance of restrictions above all else to communities – in direct conflict with the Balanced Approach.



- Local Authority; "I am very surprised about the fact that "interviewees consistently questioned the overall benefit of some Balanced Approach interventions" and even, in my opinion more shocking "there is often no evidence that interventions being made are making a difference to the quality of life of communities....." It looks like some people think "Oh, we have done a lot for those people and they keep complaining, so the effort was unnecessary". I do really believe is the other way around: "how many more complaints, how many more problems would we have if there would not be a Balanced Approach". Some airport staff have not realized yet how many advantages in comparison with other activities airports keep. For example: a new runway, a new noise map, a new isolation programme to be implemented in X years after the first plane takes off or land in the new runway. Any of these airport staff have thought about how they would feel if near by their house, a new chemical plant is developed but.....the air filters of the chimneys will be fixed, let' say, 4/5 years after". Only airports enjoy the condition to start operating before all environmental preventive actions are implemented."
- NGO Community; "Many communities see the balanced approach as a barrier to effective action. Most want operational restrictions as the impact is immediate where as land use planning and reduction at source are longer-term by nature. However, the balanced approach requires many of these long-term actions to be put in place before operational restrictions can be considered."

5 General Questions

- Do these broad findings seem consistent with your own understanding?
- Is there anything that we have missed?
- Are there any issues that should have extra emphasis placed on them in ANIMA?
- What does best practice in aviation noise management look like to you?
- Are there any areas in which you believe future research may be required to provide additional knowledge and expertise on noise impacts and management?
- If there was one outcome that you would like ANIMA to achieve what would it be?

5.1.1 IBAEC Member Input

Responses given to the question "If there was one thing that you would like to see from ANIMA what would it be?"

- Community Body; "Difficult to say; better information, better communication between airports and communities."
- Aviation Authority; "Work with stakeholders; communities and ministers. Noise indicators are not sufficient; a reworked indicator would be a good outcome."
- Aviation Authority; "I liked the summary report we were given. It is very clear. I would like to see conclusions that are usable at a global level, not only in airports with consolidated noise problems. I would like the toolkit to have enough variations so that it could be applied by ICAO at a global level."
- Industry Association; "I believe that the principles in the Balanced Approach are right but something needs to be done in terms of the implementation?"
- Industry Body; "We recognise that if we are going to continue to exist and grow we have to manage and reduce our impact but also the way the impact is received by the over flown. If ANIMA can provide the industry with more tools then we would be 100% behind it."
- Airport; "Some kind of list of solutions that can be implemented at the airport. I see discussion [on noise] with the airport managers where they know the issues but not the solutions that can be applied at their own airports. They do not know the procedures; so if you build a new runway, what are the procedures to effectively manage it?"
- Airport; "It is very important to take all aspects into consideration. When we talked about noise reduction there are several procedures which reduce

noise but increase emissions and rise cost for airlines. Balance need to be found".

- Airport "We want to start a pathway into QOL and interventions. There is enough research on the impacts on noise, we want to know how to solve those impacts. Balanced Approach is listed as a solution to noise by listing things that airports can do, but none of these will solve the noise problem, and there is a lot of areas where it doesn't address communities. Can ANIMA fill those gaps?"
- ATM Organisation; "Noise is not all about decibels. We would like to see two things:
 - 1) Consider how we can take a more psychological based approach to noise management. Is it about noise or is it about annoyance? What is the end state metric that we are looking at really?"
 - 2) Having a better understanding of noise annoyance."
- Airport Operator; "New tools to protect the surroundings of the airport; and the demands of the airport. There is a need for balance. It's not just noise, we need to focus on air quality and CO₂."

6 Next Steps

All IBAEC members are thanked for their time and contributions to ANIMA to date, specifically those who were able to travel to the first workshop. Their contributions have proved invaluable in helping to develop a deeper understanding of current noise practice in the EU.

The findings garnered from IBAEC thus far will help to inform on the next two ANIMA sub-tasks ST2.3.1 (Assessment of Existing Noise Reduction Strategies through Balanced Approach to Noise Management at 'exemplar' case studies and in ST3.1.2 (Evaluations of previous interventions in improving quality of life). These are due to be completed by M15 and M36 respectively.

The next IBAEC workshop will be held in September 2019 and will focus on detailed outcomes from case studies of best practice interventions and the lessons to be gleaned from them. Further details about this workshop, including its agenda and location will be disseminated to you in due course.

7 Core Messages

In summary a number of core messages can be extracted from the IBAEC workshop that can be considered as key outputs.

An Impacts and Balanced Approach Expert Committee (IBAEC) convened on May 18th at London Heathrow Airport to participate in a workshop facilitated by ANIMA researchers from Manchester Metropolitan University. The objective of the workshop was to introduce the ANIMA research project, review the key findings of Deliverable 2.1, and to gain participant insight as to the veracity of the findings, as well as providing the opportunity to make additional comments and contributions.

8 IBAEC members representing a range of aviation stakeholders attended the workshop, with other IBAEC members given the opportunity to contribute to the Committee via email having received a summary report of the D2.1 findings and the discussions that took place during the workshop.

This paper presents the discussions that took place during the workshop, and additional comments made by IBAEC members. Core messages from the workshop include:

- The ICAO Balanced approach is a good basis for action to reduce noise exposure, but guidance is required on the appropriate use and efficacy of different elements.
- Given that it is never possible to reduce noise exposure to zero, it is necessary to engage with effected communities, and to consider the issue in the context of the costs and benefits that accrue to them from living near to the airport, and of aviation in general.
- It is important that such engagement is a two-way process of dissemination from the airport to communities, and listening by the airport about community concerns, insight and priorities.
- All airports, of any size, need to consider aircraft noise and anticipate the consequences of growth. The 50,000-movement figure for the application of the END is too simplistic and needs to be reconsidered, for instance by having a pre-qualification criterion that requires airports to begin the process of building noise management capacity and engagement with stakeholders, particularly on the issue land-use planning.
- Management of noise impacts needs to be informed by quality data. Existing reliance upon noise modelling outputs or complaints analysis to inform Balanced Approach implementation can lead to sub-optimal outcomes. Appropriate engagement and dialogue between airports and their surrounding communities is an important pre-requisite to assessing the nature and extent of noise problems and appropriate responses. Further policy and good practice guidance would help to facilitate this.
- It is clear that the industry is committed to reducing noise impact, but doing so requires collaboration across the board, between aviation stakeholders, and between different airports to exchange best practice.
- There needs to be greater attention paid to the evaluation of the impact of Balanced Approach interventions, for example operating procedures, and how such interventions are communicated to the public. For instance, communities may be unaware that they are in receipt of noise reduction

initiatives through new operating procedures implemented by airports. Communication from the onset to determine what sort of procedures may be acceptable to communities, followed by communication of the expected outcomes and how they may be evaluated or perceived by the community would seem to help address this. WP3 of ANIMA, Reducing noise impact and improving quality of life by addressing annoyance, will help to provide insight into this issue.

- Land use planning is also a critical element of the Balanced Approach but this required the support of planning authorities.

8 ANNEX A: List of IBAEC Members

A total of 32 people were invited to participate in IBAEC, with 16 people agreeing to participate in the workshop. When presented with dates the most popular date had 11 members available to attend, of which 8 were able to make it on the day⁷. The table below presents the stakeholder groups of the

21 people who to say that they would like to be part of IBAEC and kept up to date about any future progress of workshops.

Stakeholder Group
EC Representative
Aviation Authority
Regulator
Industry Body
Community Body
Airport
ATM Organisation
Airport
Regulatory
Industry Association
Industry Association
Airport
ATM Organisation
Airport
Industry Body
Local Authority
Local Authority
Airport
Community NGO
Academia

⁷ * Denotes those who attended the 1st workshop. + Denotes people who provided input after the workshop.

